

### SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found in claim 4 as originally presented. Support for claim 23 is found on page 17, lines 8-11 of the specification. Support for the amendment to claim 6 is found on page 16, line 20 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1-3, 6-11, 14-16, 19-21 and 23 will now be active in this application.

### REQUEST FOR RECONSIDERATION

The claimed invention is directed to a foamed oil-in-water type emulsion comprising 7-35 wt.% of an oil phase comprising 30-90 wt. % of diglycerides, 65-93 wt. % of a water phase containing 15-60 wt. % of sugars and/or sugar esters, having a specific gravity of 0.1-0.9 g/cm<sup>3</sup> and a volume-average particle diameter of 0.9  $\mu$ m or less.

Foamed oil-in-water type emulsions are commonly found as food compositions. Diglyceride containing compositions have received interest in view of disclosed beneficial health effects. Incorporation of diglyceride compositions into foamed oil-in-water type emulsions such as ice cream coatings and frozen sweets is desired. However, good foaming characteristics have not always been observed. Diglyceride compositions having good foaming characteristics and foam shape keeping ability have been reported by the combination of a liquid diglyceride and hydrogenated oil (JP 63-301765) (see pg 2, lines 1-4 of applicants' specification). However, hydrogenated oils, having been used as foaming fat or oil, carry the detriments of high saturated fatty acid and high trans acid contents (pg 2, lines 6-8 of applicants' specification). Accordingly, a diglyceride containing foamed oil-in-water type emulsion having good foaming properties, a sweet taste and a low saturated fatty acid content is sought.

The claimed invention addresses this problem by providing a foamed oil-in-water type emulsion comprising an 7-35 wt.% of an oil phase comprising 30-90 wt.% of diglycerides which comprises at least 80 wt. % of unsaturated fatty acids and 0 to 20 wt. % of saturated fatty acids and 65 to 93 wt. % of a water phase comprising 15 to 60 wt.% of a sugar and/or sugar alcohol, the emulsion having a specific gravity of from 0.1-0.9 g/cm<sup>3</sup> and a **volume-average particle diameter of 0.9  $\mu$ m or less**. Applicants have discovered that such a volume-average particle diameter maximum advantageously provides for foamed oil-in-water emulsions with an excellent sweet taste. Such a foamed emulsion is nowhere disclosed or suggested in the cited prior art of record.

As evidence of the improved sweet taste by selection of the average particle diameter to be 0.9  $\mu$ m or less, and in particular from 0.05 to 0.3  $\mu$ m (claim 23), the examiner's attention is directed to examples 1-5 and comparative example 1 appearing in applicants' specification (pages 19-33). The data is presented below.

	Example 1	Example 2	Example 3	Example 4	Comparative Example 1	Example 5
High pressure emulsifying treatment (MPa)	19.6	19.6	19.6	-	19.6	176
Average particle diameter ( $\mu$ m)	0.47	0.43	0.48	2.35	0.41	0.09
Sweet taste	B	B	B	C	D	A

Examples 1, 4 and 5 were prepared using the fat and oil composition 1 described on page 24 of applicants' specification.

Examples 1 and 4 have identical compositions but differ in the average particle diameter. The smaller particle diameter of from 0.43-0.48 demonstrated improved sweet taste, relative to the larger particle size of 2.35  $\mu$ m.

Example 5 was prepared using the same oil of example 1, but at an even smaller particle size of 0.09 and had both a sweet taste which was not heavy but very excellent. Thus, this smallest particle size range provided the best sweet taste. Such an improved sweet taste performance by selection of volume average particle size is not suggested by the cited references of record.

The rejections of claims 1-4 and 6-11, 14-16 and 19-22 under 35 U.S.C. § 103(a) over Nomura et al. EP 402,090 alone and in view of Ono, U.S. 5,962,058 and Lichtenstein et al. are respectfully traversed.

None of the cited prior art of record discloses or suggests a foamed oil-in-water type emulsion of 7 to 35 wt. % of oil phase and 65 to 93 wt. % water phase comprising 15-60 wt. % of sugars having a volume-average particle diameter of 0.9  $\mu\text{m}$  or less.

Nomura et al. describes an edible oil-in-water emulsion comprising a diglyceride mixture having an increasing melting point of 20°C or below (pg 2, lines 31-34). There is no discussion of having a volume-average particle diameter of 0.9  $\mu\text{m}$  or less.

Examples 10-12 describe foamed compositions containing a sugar in the aqueous phase. However, none of these examples suggest a volume-average particle diameter of 0.9  $\mu\text{m}$  or less.

In contrast, the claimed invention is directed to a foamed oil-in-water type emulsion comprising 7-35 wt.% of an oil phase, 65-93 wt. % of a water phase containing 15-60 wt. % of sugars and/or sugar esters having a volume-average particle diameter of 0.9  $\mu\text{m}$  or less. Applicants note, the claims have been amended to recite having a volume-average particle diameter of 0.9  $\mu\text{m}$  or less.

As the reference fails to describe a volume-average particle diameter, it clearly can not suggest an improved sweet taste by selection of a volume average particle diameter of from 0.9  $\mu\text{m}$  or less.

Claim 23 is separately patentable in view of applicants' demonstration of the highest performance in the sweet taste property.

The secondary references do not cure the basic deficiencies of the primary reference.

Ono et al. fail to describe a volume-average particle size of 0.9  $\mu\text{m}$  or less. The reference has no disclosure as to particle size and accordingly can not suggest an improved sweetness by selection of particle size.

Lichtenstein et al. has merely been cited to describe the preference of the cis form of fatty acids as compared with the trans form based on the disclosed effect on the serum lipoprotein cholesterol level. However, this reference fails to disclose or suggest a volume average particle size of 0.9  $\mu\text{m}$  or less.

As the cited combination of references do not suggest a foamed oil-in-water type emulsion comprising 7-35 wt.% of an oil phase and 65-93 wt. % of a water phase containing 15-60 wt. % of sugars and/or sugar esters having a volume-average particle size of 0.9  $\mu\text{m}$  or less, the claimed invention is clearly not rendered obvious by the cited references. Accordingly, withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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